3.1 Function Expansion and Transforms

$f = \{ \xrightarrow{\text{Sample}} [\,\vdots\,] \}$

$g = \{ \xrightarrow{\text{Sample}} [\,\vdots\,] \}$

Inner Product : $\langle f, g \rangle = \int_a^b f(t) g(t)\, dt$

$f(t) = c_1 g_1(t) + c_2 g_2(t)$

$c_1 = \dfrac{\langle f, g_1 \rangle}{\langle g_1, g_1 \rangle}$ $\quad c_2 = \dfrac{\langle f, g_2 \rangle}{\langle g_2, g_2 \rangle}$